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Engineering GPA Achievement Analysis

Introduction:

- Historical data from multiple institutions show that students who achieve a first-semester grade point average (GPA) below 2.0 are at substantially greater risk of leaving engineering programs before graduating with a degree than are those who achieved above 2.0.
- Identifying these “at risk” students prior to the start of their first semester could enable improved strategies to enhance their academic success and likelihood of graduation.

Objective:

- Find statistically significant pieces of data for those who overachieved what was expected of them coming into the College of Engineering to be used in advising “at risk” students.
- Develop a statistical analysis tool that can be used on similar data sets in the future.

Methodology:

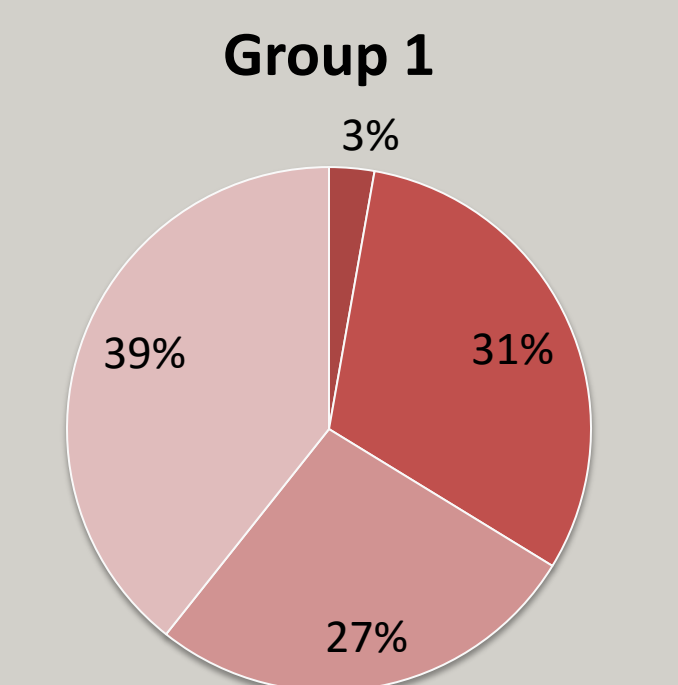
- Unidentified data from MapWorks survey was obtained and separated into four groups:

Group	Expected GPA	Actual GPA
1	< 2.0	< 2.0
2	< 2.0	Above 2.0
3	Above 2.0	< 2.0
4	Above 2.0	Above 2.0

- Using Python and MATLAB data was analyzed through the Kruskal-Wallis test
- Questions with significant differences between Groups 1 and 2 were observed

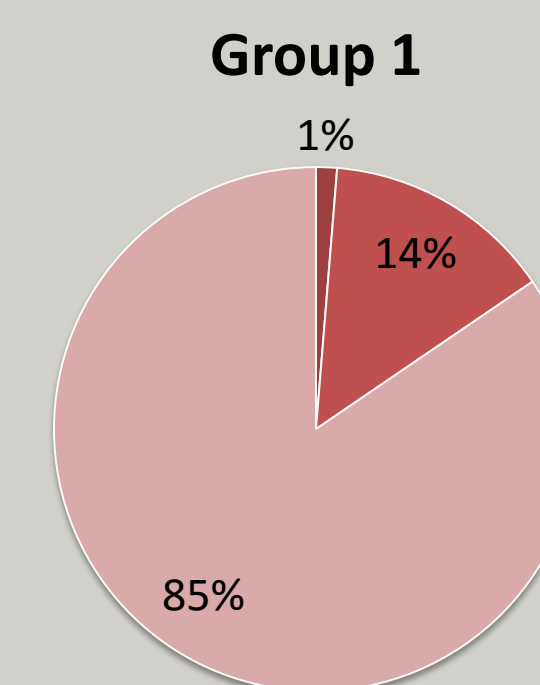
Results:

How many of your scheduled classes have you attended this term?



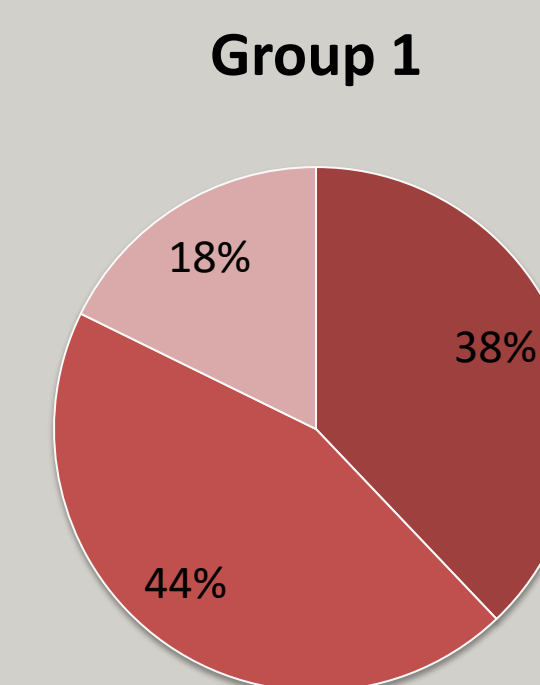
■ I miss class most of the time
■ I miss class frequently
■ I have missed a few classes
■ I have missed one class
■ I have attended all my classes

To what degree are you the kind of person who turns in required homework assignments?



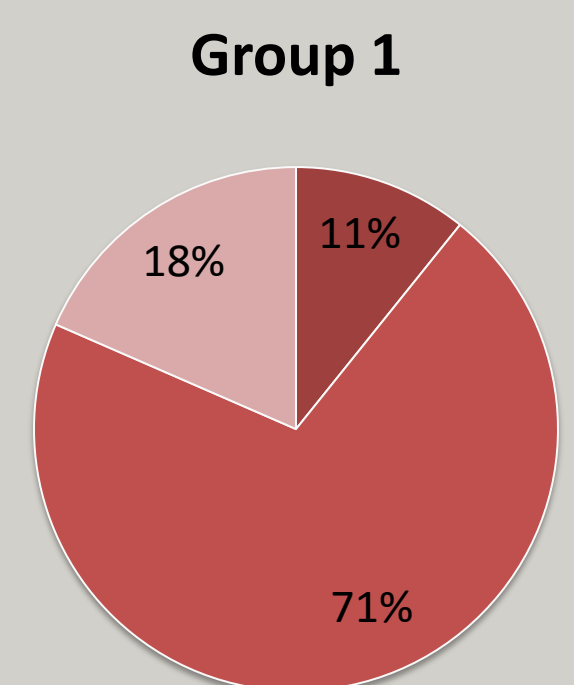
■ not at all
■ half of the time
■ always

To what degree are you a person who communicates with instructor outside of office hours?

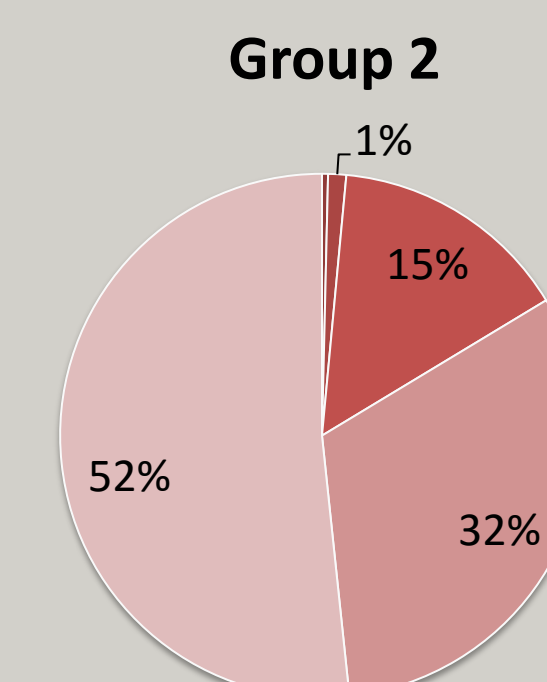


■ not at all
■ half of the time
■ always

To what degree are you the kind of person who studies on a regular schedule?



■ not at all
■ half of the time
■ always



Conclusions:

- The statistics from above can be used in advising “at-risk” engineering students in their first semester.
- The statistical tool for this data as well as an instruction document will be handed off to the Enrollment Research Group for use in future years.